

Global Water Use

What you need to know: (from the syllabus)

Irrigation, industrialization and population increase all make demands on the supplies of fresh water. Global warming may disrupt rainfall patterns and water supplies. The hydrological cycle supplies humans with fresh water but we are withdrawing water from underground aquifers and degrading it with wastes at a greater rate than it can be replenished. Consider the increased demand for fresh water, inequity of usage and political consequences, methods of reducing use and increasing supplies. A case study must be explored that covers some of these issues and demonstrates either sustainable or unsustainable water use.

Worldmapper:

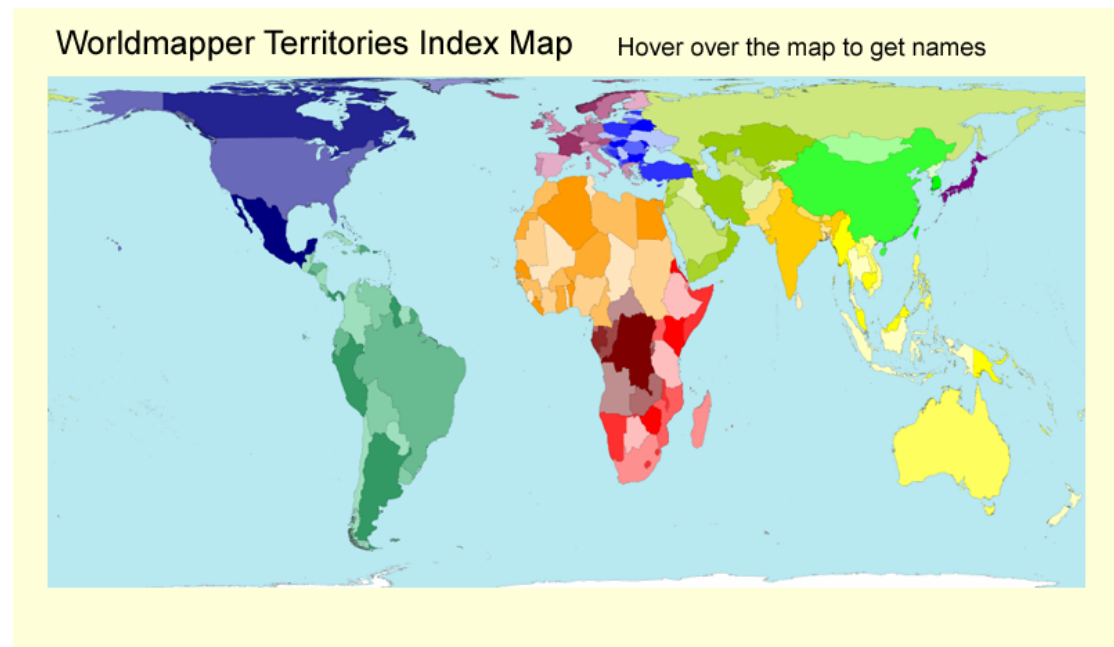
Using your assigned visual resource to create a Quicktime movie outlining the following:

1. A description of the spatial patterns including any anomalies.
2. An explanation of the patterns including any anomalies.

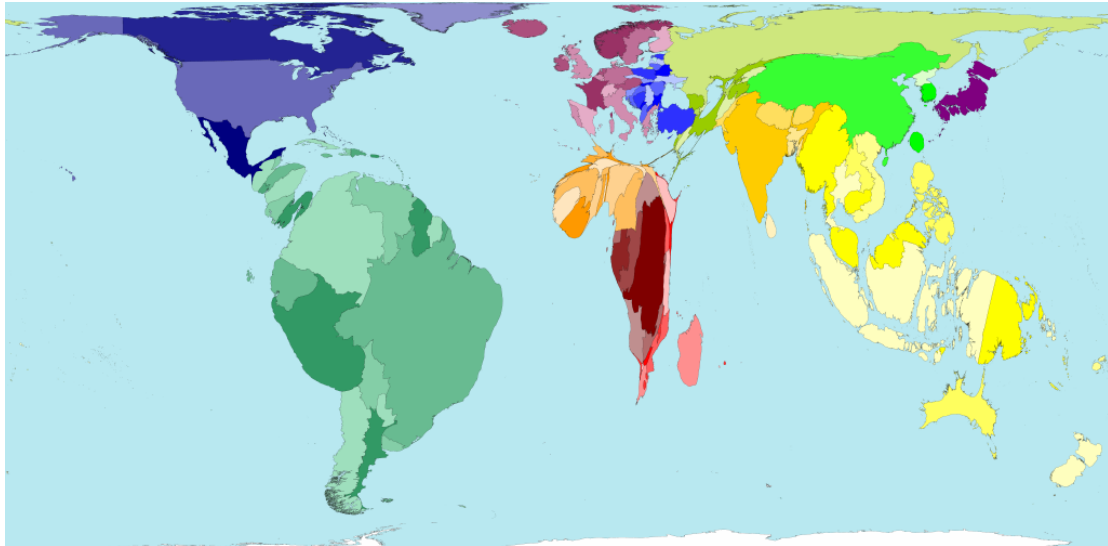
For explanations you should consider factors such as:

- Economic change (e.g. agricultural to industrial, or industrial to service-sector dominated).
- Water depletion / water availability.
- Water scarcity (economic / physical).
- Climate change.
- Population growth.

Reference map:



Water resources:

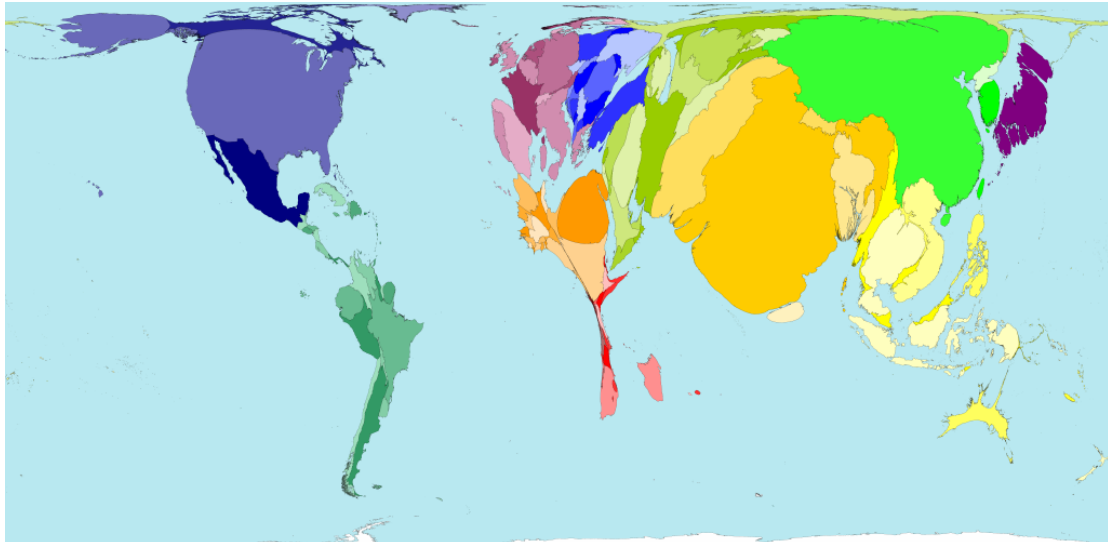


Water resources here include only freshwater, because saline (sea) water requires treatment before most uses. Only 43 600 cubic kilometres of freshwater is available as a resource each year, despite more than twice this amount falling as precipitation (rain and snow). Much is lost through evaporation. Those countries with higher rainfall often have larger water resources. Of all the water available, the regions of South America and Asia Pacific have the most.

People living in Kuwait use sea water that is processed at a desalination plant. As such Kuwait has no area on this map because there are no freshwater resources there.

<http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=102>

Water use:



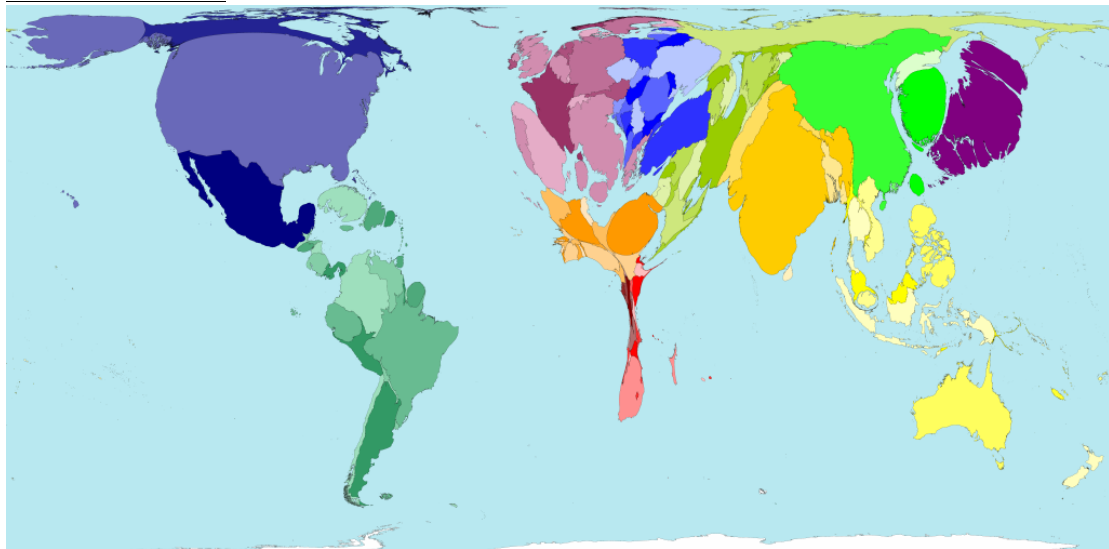
Four thousand cubic kilometres of water are used by people each year around the world, for domestic, agricultural and other industrial purposes. This does not include non-consumptive uses such as energy generation, mining, and recreation.

China, India and the United States use the most water. These are also the territories where the most people live. But water use per person is about three times higher in the United States than it is in India and China.

Whilst everybody needs water, people use hugely varying quantities. On average, people living in Central Africa each use only 2% of the water used by each person living in North America.

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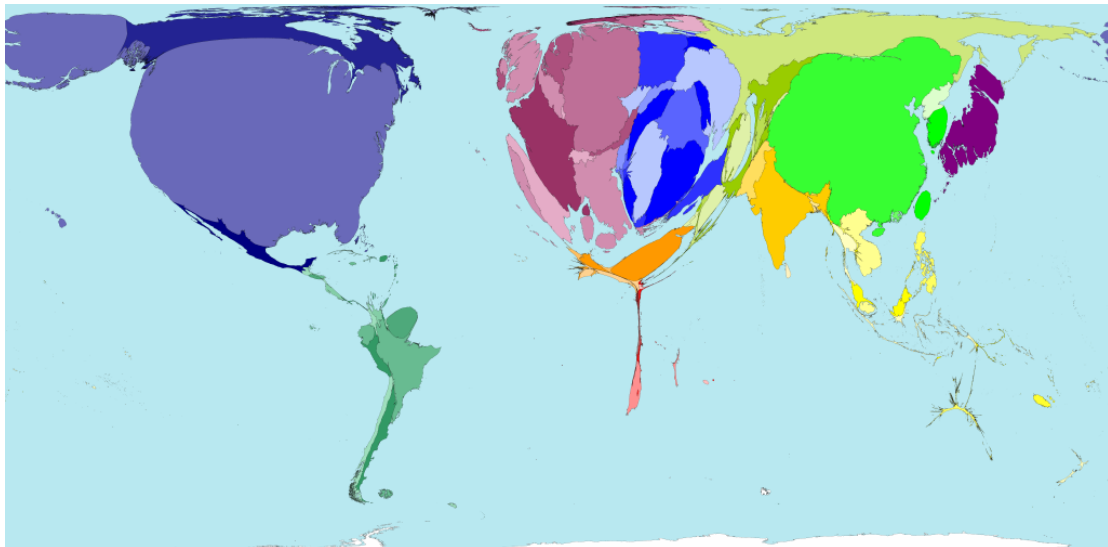
Domestic water use



Water for domestic purposes includes drinking water, use for public services, commercial service establishments (such as hotels), and homes. 325 billion cubic metres of water are so used worldwide each year. The world average water use per person is 52 cubic metres per year.

There is huge variation in water use per person. Between 1987 and 2003 people living in Cambodia, where the majority do not have access to improved water supplies, used an average of 1.8 cubic metres of water each. People in Costa Rica used one hundred times more. The residents of Australia on average each use another 300 cubic metres again per year - much to water their lawns and fill pools. <http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=324>

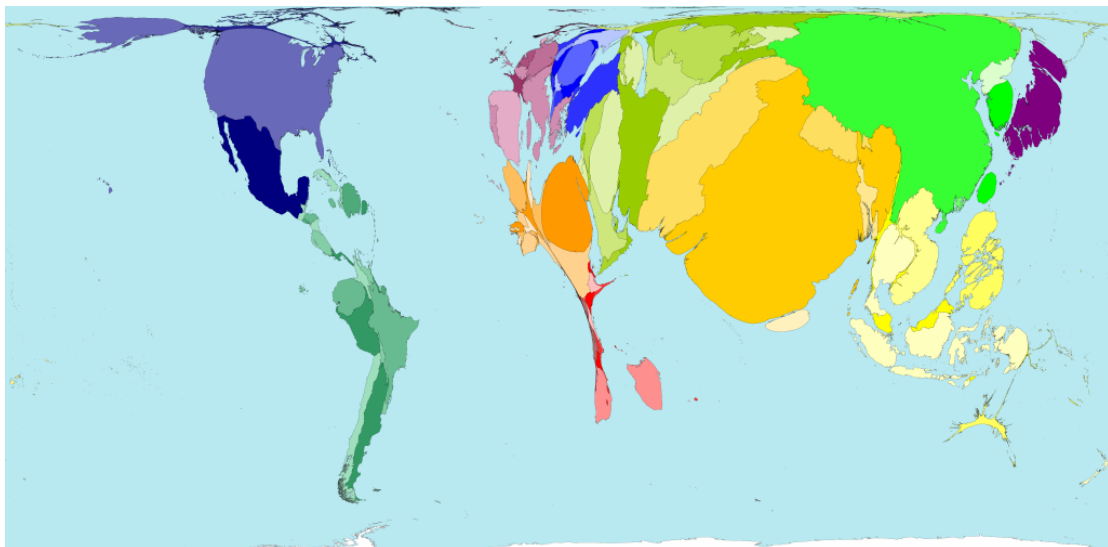
Industrial water use:



Between 1987 and 2003 roughly twice as much water was used by industries than was used for what is classed as domestic purposes: on average 665 billion cubic metres per year. Just under a third of this water usage was recorded in the United States. Just under a thirtieth was used by all 19 territories of Southeastern Africa.

Central Africa, Southeastern Africa, Southern Asia, Northern Africa and Asia Pacific all have low per person industrial water use. These regions also are small on the map as the total volume of water used for industrial purposes is relatively low, because the industries that are in these regions together use relatively little water. <http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=325>

Agricultural water use:



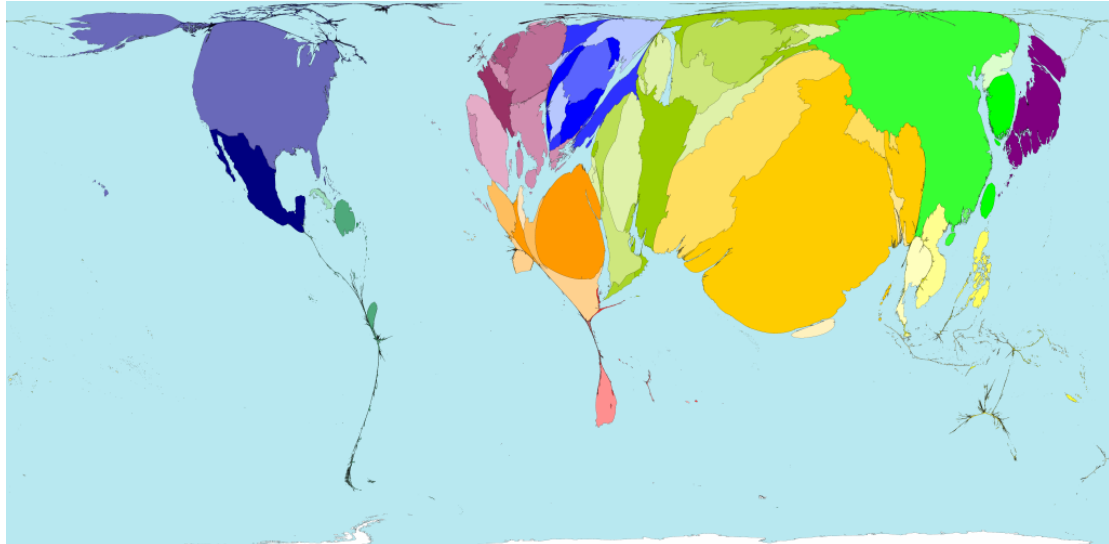
Between 1987 and 2003, on average 2.4 trillion cubic metres of water were used for agricultural purposes a year. Agricultural water includes that for irrigation and for livestock rearing.

Much of the water used for agriculture is required in Asian territories such as India, Pakistan, Nepal, China, the Philippines, Indonesia, Japan and Vietnam. There is also high per person water use in the Middle Eastern territories of Iran, Iraq, Turkmenistan, Uzbekistan, Kazakstan and Afghanistan.

Agricultural consumption of water resources is less where rainfall is regular, temperatures are moderate or low, fewer crops are grown, and few animals are reared.

<http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=326>

Water depletion:

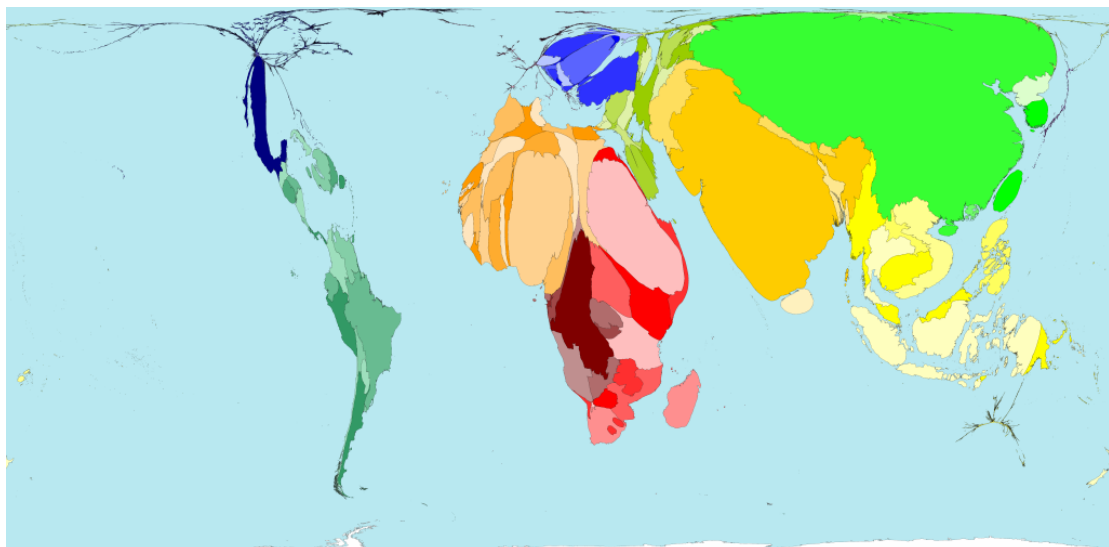


This map shows those territories that use much of their internal water resources, measured with a threshold of people using more than 10% of renewable water resources. Each territory is resized based on the volume of water used beyond 10%.

75 of the 200 territories used less than 10% of their renewable internal freshwater resources. 51 territories used between 10% and 100% of water resources, 15 territories used 100% or more. 59 territories were missing data.

Egypt uses 33 times its internal water resources - the River Nile supplies Egypt with rainwater from elsewhere. Water supplies vary: 4 territories use more per person than Egypt but under 5% of their total internal resources. <http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=323>

Poor water:



Drinking water is essential to live, but dirty drinking water is also a major cause of disease. Whilst most people living in Western Europe can access safe water, only 50% of people living in Central Africa can do this. The largest population without access to safe tap water is in China: that is 324 million people, or 25% of the population. In a quarter of all territories more than a quarter of the population is without access to safe water. Worldwide 18% of people have no safe drinking water. Safer water can be obtained by treating water, collecting it from a spring, or pumping it up from groundwater. <http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=186>

Extension:

www.gapminder.org

Explore Gap Minder and find some of the links between water consumption and economic growth.